

## Physics Core and Major Requirements (Bachelor of Science) – Catalog Year 2008

Hrs	Course Requirements	Hrs	Course Requirements	Hrs	Course Requirements
6	Freshmen Composition: <input type="checkbox"/> ENGL 1013 and <input type="checkbox"/> ENGL 1023	3	U.S. History/American Government: <input type="checkbox"/> HIST 2003 or <input type="checkbox"/> HIST 2013 or <input type="checkbox"/> PLSC 2003	9	Fine Arts/World Literature/Philosophy: <i>To be selected from at least two departments</i> <b>Fine Arts:</b> <input type="checkbox"/> ARCH 1003 or <input type="checkbox"/> LARC 1003 <input type="checkbox"/> ARHS 1003 or <input type="checkbox"/> ARTS 1003 <input type="checkbox"/> COMM 1003 <input type="checkbox"/> DANC 1003 <input type="checkbox"/> DRAM 1003 <input type="checkbox"/> HUMN 1003 <input type="checkbox"/> MLIT 1003 <b>World Literature:</b> <input type="checkbox"/> WLIT 1113 <input type="checkbox"/> WLIT 1123 ( <i>WLIT 1113</i> ), a foreign language course, any other WLIT course. <b>Philosophy:</b> <input type="checkbox"/> PHIL 2003 <input type="checkbox"/> PHIL 2103 <input type="checkbox"/> PHIL 2203
0-3	Advanced Composition: <input type="checkbox"/> ENGL 2003 or <input type="checkbox"/> ENGL 2013 <i>Exemption may be granted by:</i> 1) grade of at least "B" in ENGL 1013 and "A" in ENGL 1023 taken at the U of A, or 2) passing exemption exam	3	Social Science: <input type="checkbox"/> ANTH 1023 <input type="checkbox"/> ECON 2013 ( <i>Math 1203</i> ) or ECON 2143 <input type="checkbox"/> GEOG 2003 <input type="checkbox"/> PSYC 2003 <input type="checkbox"/> SOCI 2013 or SOCI 2033		
0-9	Foreign Language <sup>1</sup> : <i>see advisor for placement</i> <input type="checkbox"/> Completion of the Intermediate I level (2003) in a single language.	18	Science and Mathematics: To be determined by the department of major and to be selected from at least two departments other than the department of the major.		
6	Western or World Civilization: <input type="checkbox"/> HIST 1003 or HIST 1113 <input type="checkbox"/> HIST 1013 or HIST 1123				

*Course prerequisites in parentheses*

**\*\*See Catalog of Studies and/or advisor for prerequisite information.**

### Major Requirements for Physics:

- ❖ Mathematics Requirements:
  - MATH 2554 Calculus I (*MATH 1203 & MATH 1213 or MATH 1285*)
  - MATH 2564 Calculus II (*MATH 2554*)
  - MATH 2574 Calculus III (*MATH 2564*)

*Note: CSCE 4513 Software Engineering (CSCE 3313), CENG 4423, or MEEG 2703 can be substituted for MATH 3423 with advisor's approval*
- ❖ Science Requirements:
  - CHEM 1103/1101L University Chemistry I (*MATH 1203*) AND  CHEM 1123/1121L University Chemistry II (*MATH 1203 & CHEM 1103*)

**OR**

An advisor approved 8 hour laboratory-based course sequence selected from the following:

  - CSCE 1113/1111L Programming Foundations I AND  CSCE 1123/1121L Programming Foundations II (*CSCE 1113*)

**OR**

An advisor approved 9 hour course sequence selected from the following:

  - CSCE 1113/1111L Programming Foundations I and lab
  - CSCE 2143 Data Structures (*CSCE 1123 or CENG 1123*) and (*MATH 2103*)
  - CSCE 1123 Programming Foundations II (*CSCE 1113*)
  - CSCE 3313 Algorithms (*CENG 2143 or CSCE 2143, MATH 2103, and MATH 2564 or 3103*)
- ❖ A minimum of forty hours in Physics including:
  - PHYS 2054/2050L University Physics I (*Pre or Co-req: MATH 2554*)
  - PHYS 2094/2090L University Physics III (*PHYS 2074, Pre or Co-req: MATH 2574*)
  - PHYS 3614 Modern Physics (*PHYS 2074*)
  - PHYS 4991 Physics Senior Seminar
  - PHYS 2074/2070L University Physics II (*PHYS 2054, Pre or Co-req: MATH 2564*)
  - PHYS 3414 Electromagnetic Theory (*PHYS 2074, Pre or Co-req: MATH 3404*)
  - PHYS 4073 Introduction to Quantum Mechanics (*PHYS 3614, MATH 3404*)

Students must also complete one of the following concentrations:

#### CONCENTRATION 1: Professional

- PHYS 3113 Analytical Mechanics (*PHYS 2074, Pre or Co-req: MATH 3404*)
- PHYS 4333 Thermal Physics (*PHYS 3614*)

#### CONCENTRATION 2: Optics

- PHYS 3544 Optics (*PHYS 2074 or MATH 2564*)
- Select one course from the following:
- PHYS 4734 Introduction to Laser Physics (*PHYS 3414, PHYS 3544*)
  - PHYS 4754 Introduction to Applied Non-Linear Optics (*Pre or Co-req: PHYS 3414, PHYS 3544*)
  - PHYS 4774 Introduction to Optical Properties of Materials (*PHYS 3414, PHYS 3544*)
- Eight semester hours numbered 3000 or above in Physics or Astronomy

#### CONCENTRATION 3: Electronics

- Up to two hours PHYS 220V Introduction to Electronics I (*Pre or Co-req: MATH 1203 or MATH 1285*)
- Two or more hours PHYS 320V Introduction to Electronics II (*PHYS 220*)
- PHYS 4333 Thermal Physics (*PHYS 3614*) AND  Six semester hours numbered 3000 or above in Physics or Astronomy

#### CONCENTRATION 4: Computational

- PHYS 3113 Analytical Mechanics (*PHYS 2074, Pre or Co-req: MATH 3404*)
- 13 semester hours including courses 3000 or above in Physics, Astronomy, Advanced Computer Science, or Mathematics chosen with advisor's approval

#### CONCENTRATION 5: Biophysics

- PHYS 3113 Analytical Mechanics (*PHYS 2074, Pre or Co-req: MATH 3404*)
- 13 semester hours, including courses numbered 3000 and above in Physics, Astronomy, Biology, and Chemistry—chosen with advisor's approval

<sup>1</sup>Prerequisite determined by number of high school language units completed and placement score. Fulbright College students receive no credit for 1003 unless they have satisfied the College entrance requirement (2 years of a high school foreign language with another foreign language).

Electives		

Progress Check (Graduation Credit Hours Only) <sup>†</sup>											
Sem	Hrs	Sem	Hrs	Rule	Cum Hrs	Cum Hrs	Cum Hrs	Cum Hrs	Cum Hrs		
Sem 1		Sem 9		8 hr							
Sem 2		Sem 10		24 hr							
Sem 3		Sem 11		(24 cont)							
Sem 4		Sem 12		40 hr							
Sem 5		Sem 13		(40 cont)							
Sem 6		Sem 14		(40 cont)							
Sem 7		Sem 15		68 hr							
Sem 8		Sem 16		124 minimum hrs required for graduation							

❖ For more information on Physics, contact the Department of Physics: Physics Building 226 / (479)-575-2506 / [www.uark.edu/depts/physics/](http://www.uark.edu/depts/physics/)  
 \*\*\*This form is **NOT** a substitute for the Catalog of Studies. Students should verify this information with their advisor, their degree audit, and the Catalog of Studies. \*\*\*  
<sup>†</sup>See Graduation Checklist at <http://www.uark.edu/~fcac/degree-planning/checksheets.html> for more information on degree requirements.